Drinking Water Surveillance Program

UNION WATER SUPPLY SYSTEM

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UNION
WATER SUPPLY SYSTEM

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1989

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

UNION WATER SUPPLY SYSTEM
1989 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The Union Water Supply System uses a conventional treatment plant with solids contact upflow clarification. It treats water from Lake Erie. The process consists of screening, coagulation, flocculation, clarification, filtration and disinfection. This plant has a design capacity of 68 x 1000 m^3/day and serves a population of approximately 45,000.

Water samples from the raw, treated and two distribution sites were taken on a monthly basis and analyzed for the presence of approximately 180 parameters. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical(Laboratory Chemistry, Field Chemistry and Metals) and Organics (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polyaromatic Hydrocarbons, Specific Pesticides and Volatiles). Specific Pesticides and Chlorophenols were analyzed in June and November only.

A summary of results is shown in Table A.

Inorganic and Physical parameters (Laboratory Chemistry, Field Chemistry and Metals) were below any applicable health related ODWOs.

Samples were analyzed monthly for the presence of approximately 110 Organics. Levels did not exceed health related guidelines.

During 1989, the DWSP sampling results indicated that the Union Water Supply System produced good quality water at the plant and this quality was maintained in the distribution system.

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS

SUMMARY TABLE BY SCAN

SCAN	RAW			TREATED			SITE 1			SITE 2		
	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	29	24	82	33	4	12	36	5	13	36	2	5
CHEMISTRY (FLD)	33	33	100	66	66	100	137	132	96	137	131	95
CHEMISTRY (LAB)	247	208	84	250	176	70	397	320	80	396	315	79
METALS	287	163	56	287	129	44	540	271	50	540	266	49
CHLOROAROMATICS	168	0	0	154	0	0	154	0	0	154	0	0
CHLOROPHENOLS	12	0	0	12	0	0	.	.	.	.	.	.
PAH	188	0	0	173	0	0	.	.	.	0	0	0
PESTICIDES & PCB	408	0	0	387	0	0	335	0	0	335	0	0
PHENOLICS	12	7	58	12	4	33	.	.	.	0	0	0
SPECIFIC PESTICIDES	66	0	0	66	0	0	11	0	0	11	0	0
VOLATILES	348	0	0	319	44	13	319	44	13	348	48	13
TOTAL	1798	435		1759	423		1929	772		1957	762	

NO KNOWN HEALTH RELATED GUIDELINES WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

UNION WATER SUPPLY SYSTEM
1989 ANNUAL REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The DWSP was initiated at the Union Water Supply System in March 1987. Annual reports were published for 1987 and 1988 (ISSN 0840-5115).

This report contains information and results for 1989.

In order to accommodate the increasing number of plants on the DWSP and to facilitate the timely completion of the 1989 annual reports, plants with two or more years of published data will receive an abbreviated annual report. This report maintains the same general format as in previous years but does not include a comprehensive discussion of results. For more detail on the parameters analyzed and discussion of results, consult the 1987 and 1988 reports.

PLANT DESCRIPTION

The Union Water Supply System is located north of Kingsville; it is a conventional treatment plant with solids contact upflow clarification and treats water from Lake Erie. The process consists of screening, coagulation, flocculation, clarification, filtration and disinfection. A polyelectrolyte is added as a coagulant aid. Powdered activated carbon is used to control taste and odour problems. This plant has a design capacity of 68 x 1000 m^3/day and flows on the day of sampling ranging from 38.6 x 1000 m^3/day to 62.1 x 1000 m^3/day. It serves a population of 45,000. The H.J. Heinz Company accounts for 32% of the yearly water consumption.

The plant location is shown in Figure 1. Plant Process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

SAMPLING AND ANALYSIS

Plant operating personnel perform analyses on parameters for process control listed in Table 1.

Water from the Union Water Treatment Plant and from two locations in the distribution system was sampled for the presence of approximately 180 parameters monthly in 1989.

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

UNION WATER SUPPLY SYSTEM

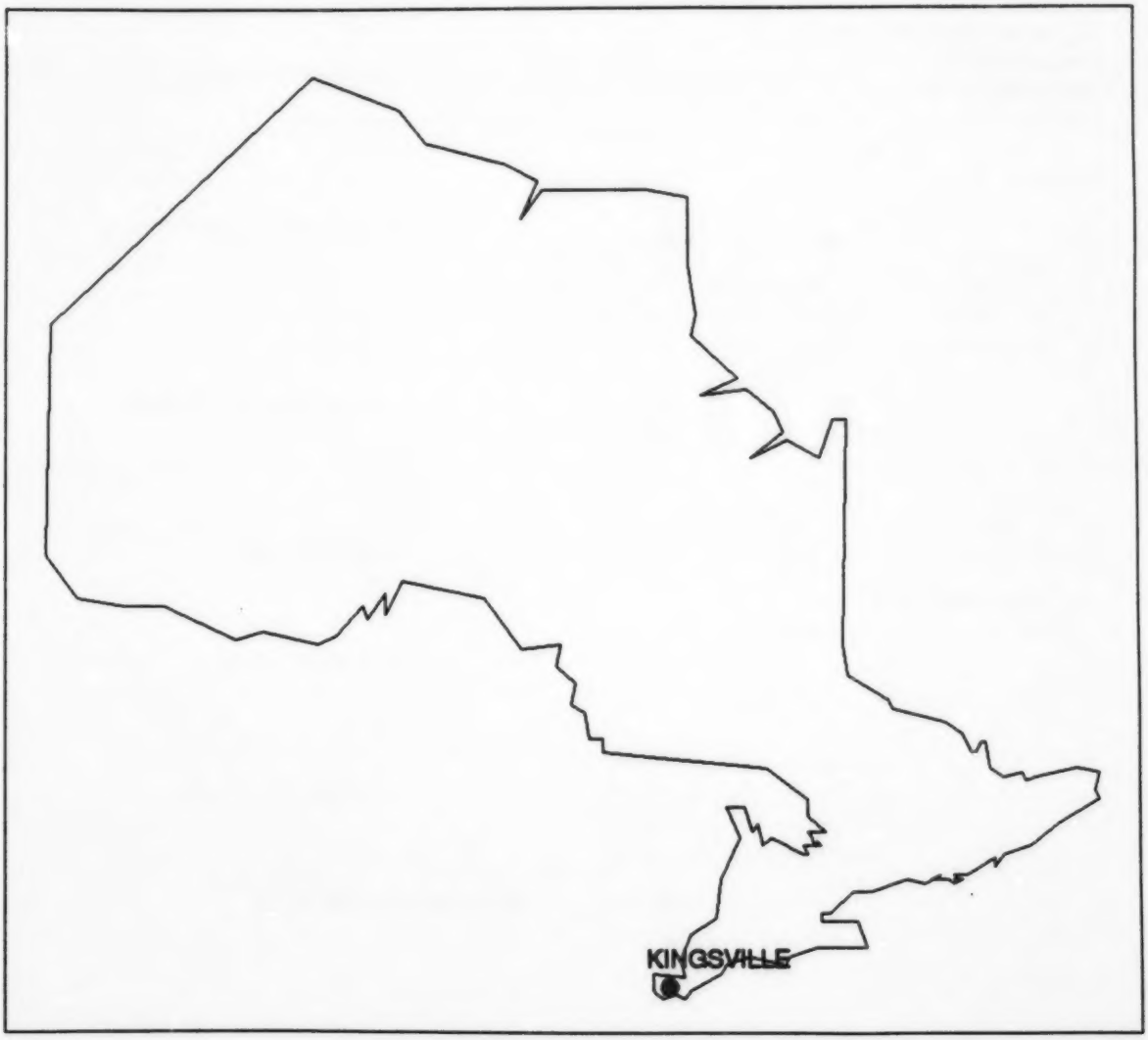

FIGURE 2

UNION WATER SUPPLY SYSTEM

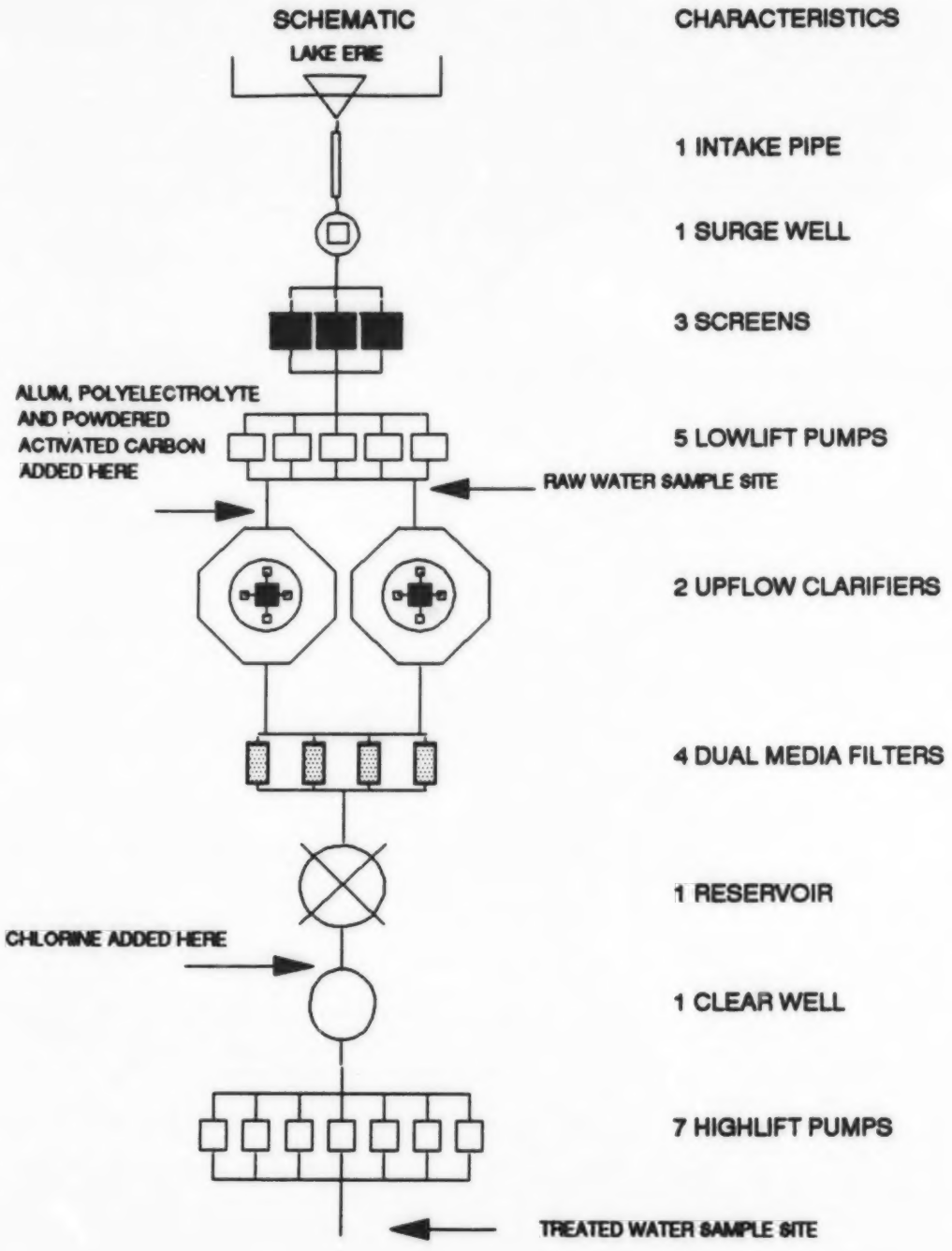

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

IN-PLANT MONITORING UNION WSS 1989

PARAMETER	LOCATION	FREQUENCY
Aluminum residual	Plant effluent	weekly
Chlorine residual-free	Filter effluent	every 2 hrs
	Plant effluent	every 2 hrs
Ph	Raw water	3 times/day
	Treated water	3 times/day
Temperature	Raw water	3 times/day
Turbidity	Raw water	hourly
	Clarifier effluent	hourly
	Filter effluent	hourly
	Plant effluent	hourly

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

UNION WATER SUPPLY SYSTEM

LOCATION:	P.O. BOX 298 KINGSVILLE, ONTARIO N9Y 2E9 (519-326-4447)
SOURCE:	RAW WATER SOURCE - LAKE ERIE
DESIGN CAPACITY:	68 (1000 M^3/DAY)
OPERATION:	MINISTRY OF THE ENVIRONMENT
PLANT SUPERINTENDENT:	W. ALLSOP
MINISTRY REGION:	SOUTHWEST
DISTRICT OFFICER:	J. DRUMMOND

MUNICIPALITY SERVED	POPULATION
ESSEX	6,336
GOSFIELD NORTH	2,078
GOSFIELD SOUTH	7,052
KINGSVILLE	5,380
LEAMINGTON	12,680
MERSEA TOWNSHIP	3,718
MAIDSTONE TOWNSHIP	1,240
ROCHESTER TOWNSHIP	840
SANDWICH SOUTH TOWNSHIP	372

The Specific Pesticides and Chlorophenols were sampled in June and November only. Polyaromatic Hydrocarbons and Phenolics are only analyzed in the raw and treated water at the plant. As of August 1989, the analysis of Triazine pesticides was dropped from the distribution sample. Laboratory analysis was conducted at the Ministry of the Environment facilities in Rexdale, Ontario.

RESULTS

Field Chemistry measurements were recorded on the day of sampling and were entered on the DWSP database as submitted by plant personnel.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analyzed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it

cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 lists all parameters analyzed on the DWSP.

Associated guidelines and detection limits are also supplied on tables 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters. These are currently under review. When an ODWO is not available, guidelines/limits from other agencies are consulted. The Parameters Listing System (PALIS), recently published (ISBN 0-7729-4461-X) by the MOE, catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Many of the compounds detected are naturally occurring or are treatment by-products.

IN THIS REPORT, DISCUSSION IS LIMITED TO THE TREATED AND DISTRIBUTED WATER AND ADDRESSES ONLY THOSE PARAMETERS WITH CONCENTRATIONS ABOVE GUIDELINE VALUES AND ORGANICS WITH DETECTED POSITIVE RESULTS.

Results for treated and distributed water indicate that no applicable health related guidelines were exceeded.

Bacteriology

Standard Plate Count

The ODWO for Standard Plate Count of 500 counts/mL (indicating some deterioration) was exceeded once in a distribution site sample.

Hardness

The ODWOs indicate that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters, provides an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and would possess a tendency to form scale deposits and result in excessive soap consumption.

Organic Parameters

Trihalomethanes

Trihalomethanes (THMs) are acknowledged to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs. All Total THM occurrences, ranging from 15.5 to 34.0 µg/L, were well below the ODWO of 350 µg/L.

CONCLUSIONS

No health related water quality guidelines were exceeded.

Results listed in this report for 1989 are consistent with results reported for previous years.

The treated water was of good quality and this was maintained in the distribution system.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS SAMPLE DAY CONDITIONS FOR 1989

	SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)				
			COAGULATION	COAGULATION AID	TASTE & ODOUR	PRE-CHLORINATION	POST-CHLORINATION
			ALUM LIQUID	POLYELECTROLYTE	ACTIVATED CARBON POWDER	CHLORINE	CHLORINE
DATE	DELAY* TIME(HRS)	FLOW (1000M3)					
JAN 05	19.5	38.6	20.00	.15	1.00	.30	.60
FEB 08	19.4	39.2	20.00	.15	.50	.30	.70
MAR 08	.0	.0	20.00	.15	.05	.30	.70
APR 06	19.5	39.2	20.00	.15	.50	.30	.75
MAY 03	19.5	39.2	20.00	.15	1.00	.30	.70
JUN 07	16.6	45.8	20.00	.15	1.00	.30	.75
AUG 10	16.0	58.9	20.00	.15	1.50	.35	.75
SEP 07	11.2	62.1	20.00	.15	1.50	.35	.75
OCT 04	12.9	58.9	20.00	.15	1.00	.30	.60
NOV 08	19.5	39.2	20.00	.15	1.50	.30	.75
DEC 06	19.5	39.2	30.00	.20	1.00	.35	.75

* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	9	7	0	.	.	.	.	.	.	.	.	.
	STANDRD PLATE CNT MF	.	.	.	11	2	0	12	4	0	12	2	0
	TOTAL COLIFORM MF	10	7	0	11	0	0	12	0	0	12	0	0
	T COLIFORM BCKGRD MF	10	10	0	11	2	0	12	1	0	12	0	0
*TOTAL SCAN BACTERIOLOGICAL		29	24	0	33	4	0	36	5	0	36	2	0
*TOTAL GROUP BACTERIOLOGICAL		29	24	0	33	4	0	36	5	0	36	2	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	11	11	0	22	19	0	22	17	0
	FLD CHLORINE FREE	.	.	.	11	11	0	23	21	0	23	22	0
	FLD CHLORINE (TOTAL)	.	.	.	11	11	0	23	23	0	23	23	0
	FLD PH	11	11	0	11	11	0	23	23	0	23	23	0
	FLD TEMPERATURE	11	11	0	11	11	0	23	23	0	23	23	0
	FLD TURBIDITY	11	11	0	11	11	0	23	23	0	23	23	0
*TOTAL SCAN CHEMISTRY (FLD)		33	33	0	66	66	0	137	132	0	137	131	0
CHEMISTRY (LAB)	ALKALINITY	11	11	0	12	12	0	21	21	0	21	21	0
	CALCIUM	12	12	0	12	12	0	23	23	0	23	23	0
	CYANIDE	12	0	0	12	0	0	12	0	0	12	0	0
	CHLORIDE	12	12	0	12	12	0	21	21	0	21	21	0
	COLOUR	12	2	9	12	0	7	21	0	18	21	0	15
	CONDUCTIVITY	11	11	0	12	12	0	21	21	0	21	21	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
CHEMISTRY (LAB)	FLUORIDE	12	12	0	12	12	0	21	21	0	20	20	0
	HARDNESS	12	12	0	12	12	0	23	23	0	23	23	0
	IONCAL	12	11	0	12	12	0	23	21	0	23	21	0
	LANGELIERS INDEX	11	11	0	10	10	0	18	18	0	18	18	0
	MAGNESIUM	12	12	0	12	12	0	23	23	0	23	23	0
	SODIUM	12	12	0	12	12	0	23	23	0	23	23	0
	AMMONIUM TOTAL	12	6	3	12	0	9	21	3	13	21	1	14
	NITRITE	12	11	1	12	0	9	21	0	20	21	0	20
	TOTAL NITRATES	12	12	0	12	12	0	21	21	0	21	21	0
	NITROGEN TOT KJELD	12	12	0	12	12	0	21	20	1	21	20	1
	PH	11	11	0	12	12	0	21	21	0	21	21	0
	PHOSPHORUS FIL REACT	12	5	4	12	0	3	.	.	.	.	.	.
	PHOSPHORUS TOTAL	12	10	2	12	0	7	.	.	.	.	.	.
	SULPHATE	12	12	0	12	12	0	21	21	0	21	21	0
	TURBIDITY	11	11	0	12	10	2	21	19	2	21	17	4
*TOTAL SCAN CHEMISTRY (LAB)		247	208	19	250	176	37	397	320	54	396	315	54
METALS	SILVER	12	0	3	12	0	3	23	0	6	23	2	10
	ALUMINUM	12	12	0	12	12	0	23	23	0	23	23	0
	ARSENIC	12	4	8	12	0	12	23	0	22	23	0	23
	BARIUM	12	12	0	12	12	0	23	23	0	23	23	0
	BORON	12	7	5	12	5	7	23	13	10	23	16	7
	BERYLLIUM	12	0	10	12	0	5	23	0	13	23	0	13

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
METALS	CADMIUM	12	0	3	12	0	3	23	0	6	23	1	8
	COBALT	12	0	10	12	0	11	23	0	19	23	1	19
	CHROMIUM	12	7	5	12	3	9	23	12	9	23	12	9
	COPPER	12	11	1	12	12	0	23	23	0	23	23	0
	IRON	12	10	2	12	0	1	23	1	22	23	0	16
	MERCURY	11	1	1	11	0	2	11	0	0	11	0	1
	MANGANESE	12	12	0	12	12	0	23	23	0	23	15	8
	MOLYBDENUM	12	10	2	12	12	0	23	23	0	23	23	0
	NICKEL	12	0	10	12	0	9	23	11	9	23	4	17
	LEAD	12	11	1	12	9	2	23	23	0	23	20	3
	ANTIMONY	12	12	0	12	12	0	23	21	2	23	21	2
	SELENIUM	12	0	6	12	0	8	23	0	15	23	1	17
	STRONTIUM	12	12	0	12	12	0	23	23	0	23	23	0
	TITANIUM	12	12	0	12	7	5	23	17	6	23	17	6
	THALLIUM	12	0	3	12	0	3	23	0	9	23	0	6
	URANIUM	12	12	0	12	2	8	23	2	21	23	3	14
	VANADIUM	12	6	6	12	7	5	23	13	10	23	16	7
	ZINC	12	12	0	12	12	0	23	20	3	23	22	1
*TOTAL SCAN METALS		287	163	76	287	129	93	540	271	182	540	266	187
*TOTAL GROUP INORGANIC & PHYSICAL		567	404	95	603	371	130	1074	723	236	1073	712	241
CHLOROAROMATICS	HEXACHLOROBUTADIENE	12	0	0	11	0	0	11	0	0	11	0	0
	123 TRICHLOROBENZENE	12	0	0	11	0	0	11	0	0	11	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE	RAW			TREATED			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHLOROAROMATICS	1234 T-CHLOROBENZENE	12	0	0	11	0	0	11	0	0	11	0	0
	1235 T-CHLOROBENZENE	12	0	0	11	0	0	11	0	0	11	0	0
	124 TRICHLOROBENZENE	12	0	0	11	0	0	11	0	0	11	0	0
	1245 T-CHLOROBENZENE	12	0	0	11	0	0	11	0	0	11	0	0
	135 TRICHLOROBENZENE	12	0	0	11	0	0	11	0	0	11	0	0
	HCB	12	0	0	11	0	0	11	0	0	11	0	0
	HEXACHLOROETHANE	12	0	0	11	0	0	11	0	0	11	0	0
	OCTACHLOROSTYRENE	12	0	0	11	0	0	11	0	0	11	0	0
	PENTACHLOROBENZENE	12	0	0	11	0	0	11	0	0	11	0	0
	236 TRICHLOROTOLUENE	12	0	0	11	0	0	11	0	0	11	0	0
	245 TRICHLOROTOLUENE	12	0	0	11	0	0	11	0	0	11	0	0
	26A TRICHLOROTOLUENE	12	0	0	11	0	0	11	0	0	11	0	0
*TOTAL SCAN CHLOROAROMATICS		168	0	0	154	0	0	154	0	0	154	0	0
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	2345 T-CHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	2356 T-CHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	245-TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	246-TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	PENTACHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
*TOTAL SCAN CHLOROPHENOLS		12	0	0	12	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
PAH	PHENANTHRENE	12	0	0	11	0	0	.	.	.	0	0	0
	ANTHRACENE	12	0	0	11	0	0	.	.	.	0	0	0
	FLUORANTHENE	12	0	0	11	0	0	.	.	.	0	0	0
	PYRENE	12	0	0	11	0	0	.	.	.	0	0	0
	BENZO(A)ANTHRACENE	12	0	0	11	0	0	.	.	.	0	0	0
	CHRYSENE	12	0	0	11	0	0	.	.	.	0	0	0
	DIMETH. BENZ(A)ANTHR	3	0	0	3	0	0	.	.	.	0	0	0
	BENZO(E) PYRENE	12	0	0	11	0	0	.	.	.	0	0	0
	BENZO(B) FLUORANTHEN	12	0	0	11	0	0	.	.	.	0	0	0
	PERYLENE	12	0	0	11	0	0	.	.	.	0	0	0
	BENZO(K) FLUORANTHEN	12	0	0	11	0	0	.	.	.	0	0	0
	BENZO(A) PYRENE	5	0	0	5	0	0	.	.	.	0	0	0
	BENZO(G,H,I) PERYLEN	12	0	0	11	0	0	.	.	.	0	0	0
	DIBENZO(A,H) ANTHRAC	12	0	0	11	0	0	.	.	.	0	0	0
	INDENO(1,2,3-C,D) PY	12	0	0	11	0	0	.	.	.	0	0	0
	BENZO(B) CHRYSENE	12	0	0	11	0	0	.	.	.	0	0	0
	CORONENE	12	0	0	11	0	0	.	.	.	0	0	0
*TOTAL SCAN PAH		188	0	0	173	0	0	0	0	0	0	0	0
PESTICIDES & PCB	ALDRIN	12	0	0	11	0	0	11	0	0	11	0	0
	ALPHA BHC	12	0	8	11	0	4	11	0	6	11	0	5
	BETA BHC	12	0	0	11	0	0	11	0	0	11	0	0
	LINDANE	12	0	0	11	0	0	11	0	0	11	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE											
		RAW			TREATED			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	ALPHA CHLORDANE	12	0	0	11	0	0	11	0	0	11	0	0
	GAMMA CHLORDANE	12	0	0	11	0	0	11	0	0	11	0	0
	DIELDRIN	12	0	0	11	0	0	11	0	0	11	0	0
	METHOXYCHLOR	12	0	0	11	0	0	11	0	0	11	0	0
	ENDOSULFAN I	12	0	0	11	0	0	11	0	0	11	0	0
	ENDOSULFAN II	12	0	0	11	0	0	11	0	0	11	0	0
	ENDRIN	12	0	0	11	0	0	11	0	0	11	0	0
	ENDOSULFAN SULPHATE	12	0	0	11	0	0	11	0	0	11	0	0
	HEPTACHLOR EPOXIDE	12	0	0	11	0	0	11	0	0	11	0	0
	HEPTACHLOR	12	0	0	11	0	0	11	0	0	11	0	0
	MIREX	12	0	0	11	0	0	11	0	0	11	0	0
	OXYCHLORDANE	12	0	0	11	0	0	11	0	0	11	0	0
	OPDDT	12	0	0	11	0	0	11	0	0	11	0	0
	PCB	12	0	0	11	0	0	11	0	0	11	0	0
	DDD	12	0	0	11	0	0	11	0	0	11	0	0
	PPDDE	12	0	0	11	0	0	11	0	0	11	0	0
	PPDDT	12	0	0	11	0	0	11	0	0	11	0	0
	AMETRINE	12	0	0	12	0	0	8	0	0	8	0	0
	ATRAZINE	12	0	0	12	0	0	8	0	0	8	0	0
	ATRATONE	12	0	0	12	0	0	8	0	0	8	0	0
	CYANAZINE (BLADEX)	12	0	0	12	0	0	8	0	0	8	0	0
	D-ETHYL ATRAZINE	12	0	0	12	0	0	8	0	0	8	0	0
	D-ETHYL SIMAZINE	12	0	0	12	0	0	8	0	0	8	0	0
	PROMETONE	12	0	0	12	0	0	8	0	0	8	0	0
	PROPAZINE	12	0	0	12	0	0	8	0	0	8	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE											
		RAW			TREATED			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	PROMETRYNE	12	0	0	12	0	0	8	0	0	8	0	0
	METRIBUZIN (SENCOR)	12	0	0	12	0	0	8	0	0	8	0	0
	SIMAZINE	12	0	0	12	0	0	8	0	0	8	0	0
	ALACHLOR (LASSO)	12	0	0	12	0	0	8	0	0	8	0	0
	METOLACHLOR	12	0	0	12	0	0	8	0	0	8	0	0
*TOTAL SCAN PESTICIDES & PCB		408	0	8	387	0	4	335	0	6	335	0	5
PHENOLICS	PHENOLICS	12	7	5	12	4	7	.	.	.	0	0	0
*TOTAL SCAN PHENOLICS		12	7	5	12	4	7	0	0	0	0	0	0
SPECIFIC PESTICIDES	TOXAPHENE	12	0	0	11	0	0	11	0	0	11	0	0
	2,4,5-T	2	0	0	2	0	0	.	.	.	.	.	.
	2,4-D	2	0	0	2	0	0	.	.	.	.	.	.
	2,4-DB	2	0	0	2	0	0	.	.	.	.	.	.
	2,4 D PROPIONIC ACID	2	0	0	2	0	0	.	.	.	.	.	.
	DICAMBA	2	0	0	2	0	0	.	.	.	.	.	.
	PICHLORAM	0	0	0	0	0	0	.	.	.	.	.	.
	SILVEX	2	0	0	2	0	0	.	.	.	.	.	.
	DIAZINON	2	0	0	2	0	0	.	.	.	.	.	.
	DICHLOROVOS	2	0	0	2	0	0	.	.	.	.	.	.
	CHLORPYRIFOS	2	0	0	2	0	0	.	.	.	.	.	.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE											
		RAW			TREATED			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
SPECIFIC PESTICIDES	ETHION	2	0	0	2	0	0	.	.	.	.	.	.
	AZINPHOS-METHYL	1	0	0	2	0	0	.	.	.	.	.	.
	MALATHION	2	0	0	2	0	0	.	.	.	.	.	.
	MEVINPHOS	2	0	0	2	0	0	.	.	.	.	.	.
	METHYL PARATHION	2	0	0	2	0	0	.	.	.	.	.	.
	METHYLTRITHION	2	0	0	2	0	0	.	.	.	.	.	.
	PARATHION	2	0	0	2	0	0	.	.	.	.	.	.
	PHORATE	2	0	0	2	0	0	.	.	.	.	.	.
	RELDAN	2	0	0	2	0	0	.	.	.	.	.	.
	RONNEL	2	0	0	2	0	0	.	.	.	.	.	.
	AMINOCARB	1	0	0	1	0	0	.	.	.	.	.	.
	BENOMYL	1	0	0	1	0	0	.	.	.	.	.	.
	BUX	0	0	0	0	0	0	.	.	.	.	.	.
	CARBOFURAN	2	0	0	2	0	0	.	.	.	.	.	.
	CICP	2	0	0	2	0	0	.	.	.	.	.	.
	DIALLATE	2	0	0	2	0	0	.	.	.	.	.	.
	EPTAM	1	0	0	1	0	0	.	.	.	.	.	.
	IPC	2	0	0	2	0	0	.	.	.	.	.	.
	PROPOXUR	2	0	0	2	0	0	.	.	.	.	.	.
	CARBARYL	2	0	0	2	0	0	.	.	.	.	.	.
	BUTYLATE	2	0	0	2	0	0	.	.	.	.	.	.
*TOTAL SCAN SPECIFIC PESTICIDES		66	0	0	66	0	0	11	0	0	11	0	0
VOLATILES	BENZENE	12	0	1	11	0	0	11	0	1	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
VOLATILES	TOLUENE	12	0	2	11	0	4	11	0	4	12	0	4
	ETHYLBENZENE	12	0	0	11	0	4	11	0	7	12	0	5
	P-XYLENE	12	0	0	11	0	0	11	0	0	12	0	0
	M-XYLENE	12	0	0	11	0	0	11	0	0	12	0	0
	O-XYLENE	12	0	1	11	0	1	11	0	2	12	0	3
	STYRENE	12	0	2	11	0	2	11	0	6	12	0	7
	1,1 DICHLOROETHYLENE	12	0	0	11	0	0	11	0	0	12	0	0
	METHYLENE CHLORIDE	12	0	0	11	0	0	11	0	0	12	0	0
	T1,2DICHLOROETHYLENE	12	0	0	11	0	0	11	0	0	12	0	0
	1,1 DICHLOROETHANE	12	0	0	11	0	0	11	0	0	12	0	0
	CHLOROFORM	12	0	0	11	11	0	11	11	0	12	12	0
	111, TRICHLOROETHANE	12	0	0	11	0	0	11	0	0	12	0	0
	1,2 DICHLOROETHANE	12	0	0	11	0	0	11	0	0	12	0	0
	CARBON TETRACHLORIDE	12	0	0	11	0	0	11	0	0	12	0	0
	1,2 DICHLOROPROPANE	12	0	0	11	0	0	11	0	0	12	0	0
	TRICHLOROETHYLENE	12	0	0	11	0	0	11	0	0	12	0	0
	DICHLOROBROMOMETHANE	12	0	0	11	11	0	11	11	0	12	12	0
	112 TRICHLOROETHANE	12	0	0	11	0	0	11	0	0	12	0	0
	CHLORODIBROMOMETHANE	12	0	0	11	11	0	11	11	0	12	12	0
	T-CHLOROETHYLENE	12	0	0	11	0	2	11	0	1	12	0	1
	BROMOFORM	12	0	0	11	0	11	11	0	11	12	0	12
	1122 T-CHLOROETHANE	12	0	0	11	0	0	11	0	0	12	0	0
	CHLOROBENZENE	12	0	0	11	0	0	11	0	0	12	0	0
	1,4 DICHLOROBENZENE	12	0	0	11	0	0	11	0	1	12	0	0
	1,3 DICHLOROBENZENE	12	0	0	11	0	0	11	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM UNION

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
VOLATILES	1,2 DICHLOROBENZENE	12	0	0	11	0	0	11	0	0	12	0	0
	ETHLYENE DIBROMIDE	12	0	0	11	0	0	11	0	0	12	0	0
	TOTL TRIHALOMETHANES	12	0	0	11	11	0	11	11	0	12	12	0
*TOTAL SCAN VOLATILES		348	0	6	319	44	24	319	44	33	348	48	32
*TOTAL GROUP ORGANIC		1202	7	19	1123	48	35	819	44	39	848	48	37
TOTAL		1798	435	114	1759	423	165	1929	772	275	1957	762	278

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)

1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
   - total coliform counts > 0 < 5
   - P/A Bottle Test is present after 48 hours
   - Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
   - Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
   - Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours
2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
   - hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)

1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, the AO is a total)

C WORLD HEALTH ORGANIZATION (WHO)

1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)

1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria

F EUROPEAN ECONOMIC COMMUNITY (EEC)

1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:
1. Exclude the low-level data because of this uncertainty factor. Studies of long-term environmental trends and modelling may however, be adversely affected by the exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported with the code "<T". Results qualified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. The average of such data however, is still only an estimate of the amount of substance present subject to the possible biases of the method used.

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!IV	No Data: Inverted Septum
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded

!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UAL	Unreliable: Sample Age Exceeds Normal Limit
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
USD	Unreliable: Sample Decomposition Noted
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
BACTERIOLOGICAL						
FECAL COLIFORM MF (CT/100ML)			**DET'N LIMIT = 0**		**GUIDELINE = 0 (A1)**	
JAN	7 T48	.	.	.	.	.
FEB	2 T48	.	.	.	.	.
APR	0 T48	.	.	.	.	.
MAY	0	.	.	.	.	.
JUN	ILA	.	.	.	.	.
JUL	1	.	.	.	.	.
AUG	1	.	.	.	.	.
SEP	ILA	.	.	.	.	.
OCT	2	.	.	.	.	.
NOV	8	.	.	.	.	.
DEC	10	.	.	.	.	.
STANDRD PLATE CNT MF ( )			**DET'N LIMIT = 0**		**GUIDELINE = 500/ML (A1)**	
JAN	.	0 <=>	.	0 <=>	.	0 <=>
FEB	.	0 <=>	.	0 <=>	.	0 <=>
MAR	.	.	.	0 <=>	.	0 <=>
APR	.	1 <=>	.	0 <=>	.	2 <=>
MAY	.	1 <=>	.	2 <=>	.	0 <=>
JUN	.	0 <=>	.	870 <=>	.	1
JUL	.	0 <=>	.	18	.	0 <=>
AUG	.	147	.	41	.	20
SEP	.	26	.	13	.	3 <=>
OCT	.	0 <=>	.	0 <=>	.	0 <=>
NOV	.	0 <=>	.	15	.	5 <=>
DEC	.	0 <=>	.	0 <=>	.	1 <=>
TOTAL COLIFORM MF (CT/100ML)			**DET'N LIMIT = 0**		**GUIDELINE = 5/100ML(A1)**	
JAN	290 A3C	0 T24	.	0 T24	.	0 T24
FEB	88 A3C	0 T24	.	0 T24	.	0 T24
MAR	.	.	.	0 T48	.	0 T48
APR	68 A3C	0 T24	.	0 T24	.	0 T24
MAY	BDL	0	.	0	.	0
JUN	ILA	0	.	0 A3C	.	0
JUL	3000 >	0	.	0	.	0
AUG	BDL	0	.	0	.	0
SEP	220 A3C	0 A3C	.	0	.	0
OCT	100 <=>	0	.	0	.	0
NOV	240 A3C	0	.	0	.	0
DEC	1320 A3C	0	.	0	.	0
T COLIFORM BCKGRD MF (CT/100ML)			**DET'N LIMIT = 0**		**GUIDELINE = N/A**	
JAN	14000 A3C	0 T24	.	0 T24	.	0 T24
FEB	5160 A3C	0 T24	.	0 T24	.	0 T24
MAR	.	.	.	0 T48	.	0 T48
APR	9600 >	0 T24	.	0 T24	.	0 T24

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION USS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
			SITE 1		SITE 2	
	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
MAY	9600 >	0	.	0	.	0
JUN	ILA	0	.	2400 >	.	0
JUL	48000 >	0	.	0	.	0
AUG	40000 >	2400 >	.	0	.	0
SEP	48000 >	670 A3C	.	0	.	0
OCT	59000 A3C	0	.	0	.	0
NOV	48000 >	0	.	0	.	0
DEC	48000 >	0	.	0	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION MSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (FLD)						
FLD CHLORINE (COMB) ( )			**DET'N LIMIT = N/A**		**GUIDELINE = N/A**	
JAN	.	.200	.200	.	.100	.100
FEB	.	.200	.100	.050	.	.050
MAR	.	.100	.	.200	.	.050
APR	.	.090	.100	.100	.100	.300
MAY	.	.200	.100	.100	.100	.100
JUN	.	.250	.200	.200	.200	.200
JUL	.	.	.200	.100	.100	.100
AUG	.	.120	.100	.200	.000	.050
SEP	.	.100	.100	.000	.000	.100
OCT	.	.200	.000	.200	.000	.000
NOV	.	.100	.000	.100	.100	.200
DEC	.	.100	.100	.200	.000	.200
FLD CHLORINE FREE ( )			**DET'N LIMIT = N/A**		**GUIDELINE = N/A**	
JAN	.	.700	.100	.300	.100	.300
FEB	.	.900	.200	.400	.200	.700
MAR	.	.800	.	.400	.	.540
APR	.	.700	.200	.300	.400	.400
MAY	.	.900	.200	.300	.100	.500
JUN	.	.450	.100	.300	.100	.300
JUL	.	.	.000	.200	.000	.300
AUG	.	.680	.000	.100	.100	.150
SEP	.	.700	.200	.300	.100	.400
OCT	.	.700	.500	.500	.300	.500
NOV	.	.720	.100	.300	.100	.400
DEC	.	.700	.100	.300	.100	.300
FLD CHLORINE (TOTAL) ( )			**DET'N LIMIT = N/A**		**GUIDELINE = N/A**	
JAN	.	.900	.300	.300	.200	.400
FEB	.	1.100	.300	.450	.200	.750
MAR	.	.900	.	.600	.	.590
APR	.	.790	.300	.400	.500	.700
MAY	.	1.100	.300	.400	.200	.600
JUN	.	.700	.300	.500	.300	.500
JUL	.	.	.200	.300	.100	.400
AUG	.	.800	.100	.300	.100	.200
SEP	.	.800	.300	.300	.100	.500
OCT	.	.900	.500	.700	.300	.500
NOV	.	.820	.100	.400	.200	.600
DEC	.	.800	.200	.500	.100	.500
FLD PH (DIMNSLESS)			**DET'N LIMIT = N/A**		**GUIDELINE = 6.5-8.5(A4)**	
JAN	8.000	7.300	7.400	7.400	7.600	7.500
FEB	7.600	7.300	7.500	7.400	7.500	7.300
MAR	8.190	7.300	.	7.500	.	7.500

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
			SITE 1		SITE 2	
	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
APR	7.960	7.230	7.500	7.500	7.300	7.500
MAY	7.800	7.400	7.400	7.400	7.500	7.300
JUN	7.600	7.200	7.400	7.400	7.200	7.200
JUL	.	.	7.400	7.400	7.400	7.400
AUG	7.000	7.300	7.500	7.300	7.400	7.400
SEP	7.800	7.400	7.400	7.300	7.500	7.300
OCT	7.800	7.400	7.400	7.400	7.600	7.400
NOV	8.200	7.200	7.900	7.300	8.000	7.700
DEC	7.500	7.200	7.400	7.300	7.500	7.500
FLD TEMPERATURE (DEG.C)			DET'N LIMIT = N/A		GUIDELINE = 15 (A1)	
JAN	.500	.500	15.000	9.000	19.000	9.000
FEB	.500	1.000	15.000	8.000	18.000	9.000
MAR	.500	1.500	.	7.000	.	9.000
APR	6.000	7.000	16.000	9.000	17.000	10.000
MAY	10.500	11.800	17.500	12.500	17.000	10.500
JUN	18.000	17.500	20.000	17.500	21.000	15.000
JUL	.	.	24.000	21.000	23.500	19.500
AUG	24.000	23.000	23.000	22.500	23.000	22.000
SEP	23.500	23.500	22.500	22.000	23.000	21.500
OCT	18.500	18.600	20.200	20.000	18.200	18.200
NOV	10.000	10.000	20.000	17.000	20.000	14.500
DEC	15.000	25.000	18.000	17.000	19.000	16.500
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A		GUIDELINE = 1.0 (A1)	
JAN	3.900	.030	.140	.110	.140	.160
FEB	23.000	.040	.230	.200	.250	.220
MAR	12.700	.030	.	.120	.	.070
APR	2.300	.030	1.120	.220	.360	.110
MAY	1.100	.040	.270	.150	.480	.210
JUN	21.000	.070	.120	.120	.090	.090
JUL	.	.	.210	.200	.240	.110
AUG	4.000	.060	.190	.180	.210	.180
SEP	24.000	.090	.170	.130	.540	.380
OCT	4.000	.060	.240	.100	.130	.130
NOV	39.000	.040	.100	.120	.350	.150
DEC	79.000	.060	.240	.140	.090	.070

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (LAB)						
ALKALINITY (MG/L)			DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)	
JAN	91.400	80.500	81.800	81.600	81.800	81.800
FEB	91.800	80.800	81.600	81.100	81.100	81.000
MAR	92.700	83.500	.	84.200	.	84.700
APR	89.500	78.800	80.600	80.200	79.900	79.900
MAY	78.000	80.000	77.500	77.300	77.600	76.200
JUN	88.800	77.500	79.200	79.300	80.400	80.500
JUL	87.800	76.800	79.300	78.200	79.600	79.700
AUG	IIS	76.400	79.300	79.000	80.700	79.400
SEP	84.000	73.600	74.700	74.900	75.800	76.000
OCT	84.800	74.100	ISM	ISM	ISM	ISM
NOV	88.100	75.000	80.200	79.600	80.900	79.900
DEC	89.700	79.100	81.100	81.100	83.500	80.500
CALCIUM (MG/L)			DET'N LIMIT = .100		GUIDELINE = 100 (F2)	
JAN	30.600	29.600	33.000	36.200	32.000	34.200
FEB	32.200	32.600	33.000	31.800	32.000	32.400
MAR	33.800	34.000	.	35.600	.	35.600
APR	34.600	34.400	35.400	35.000	34.600	34.400
MAY	30.800	35.200	33.000	32.200	32.000	31.800
JUN	32.600	32.200	33.200	33.200	33.400	33.800
JUL	32.200	32.000	33.000	33.400	33.600	33.600
AUG	28.400	30.000	32.200	31.900	33.500	32.400
SEP	30.000	30.800	30.800	31.600	31.200	31.000
OCT	28.600	28.200	29.400	28.800	29.800	29.400
NOV	29.400	32.000	31.600	32.600	33.400	31.400
DEC	36.400	37.000	37.000	35.900	36.100	37.100
CHLORIDE (MG/L)			DET'N LIMIT = .200		GUIDELINE = 250 (A3)	
JAN	13.900	14.900	14.800	14.700	14.900	14.700
FEB	11.900	13.100	12.900	12.900	13.100	13.100
MAR	13.100	14.400	.	14.300	.	14.300
APR	14.700	15.500	16.200	15.500	15.700	15.700
MAY	13.500	14.800	16.200	15.800	16.400	14.900
JUN	11.900	12.800	13.100	13.000	13.000	13.000
JUL	11.100	12.400	12.700	12.500	12.700	12.500
AUG	10.800	11.800	12.000	11.900	12.000	11.800
SEP	15.200	16.300	16.300	16.500	16.500	16.400
OCT	11.300	11.000	.	.	.	.
NOV	15.300	16.500	15.100	16.200	16.200	14.300
DEC	16.700	17.200	18.000	17.900	16.900	17.000
COLOUR (HZU)			DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)	
JAN	2.500	1.000 <T	1.000 <T	.500 <T	.500 <T	.500 <T
FEB	1.500 <T	BDL	BDL	BDL	BDL	BDL
MAR	1.500 <T	BDL	.	.500 <T	.	BDL

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DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	1.500 <T	.500 <T	1.500 <T	1.000 <T	1.000 <T	.500 <T
MAY	2.000 <T	BDL	.500 <T	.500 <T	.500 <T	.500 <T
JUN	3.000	1.000 <T	1.000 <T	1.000 <T	1.000 <T	1.000 <T
JUL	2.000 <T	1.000 <T	1.500 <T	1.000 <T	1.000 <T	1.000 <T
AUG	2.000 <T	.500 <T	.500 <T	.500 <T	.500 <T	.500 <T
SEP	2.000 <T	.500 <T	.500 <T	.500 <T	.500 <T	.500 <T
OCT	1.500 <T	BDL	ISM	ISM	ISM	ISM
NOV	.500 <T	.500 <T	.500 <T	BDL	.500 <T	BDL
DEC	BDL	BDL	.500 <T	.500 <T	BDL	BDL
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1		GUIDELINE = 400 (F2)	
JAN	267	272	272	270	273	273
FEB	257	268	261	261	262	265
MAR	266	279	.	277	.	276
APR	273	276	278	278	278	278
MAY	256	265	276	274	275	268
JUN	255	258	259	260	260	263
JUL	242	248	254	251	254	253
AUG	115	244	250	249	254	251
SEP	251	256	259	258	259	260
OCT	235	239	ISM	ISM	ISM	ISM
NOV	257	272	268	272	275	263
DEC	268	279	279	277	277	273
FLUORIDE (MG/L)			DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)	
JAN	.080	.100	.080	.100	.120	.120
FEB	.100	.080	.080	.080	.080	.080
MAR	.100	.080	.	.080	.	.080
APR	.100	.080	.080	.100	.120	ICR
MAY	.100	.080	.080	.080	.060	.080
JUN	.060	.080	.080	.100	.100	.080
JUL	.120	.100	.080	.100	.080	.100
AUG	.080	.080	.060	.080	.080	.080
SEP	.080	.080	.060	.080	.080	.060
OCT	.080	.080	ISM	ISM	ISM	ISM
NOV	.100	.060	.080	.080	.060	.080
DEC	.080	.060	.100	.080	.140	.080
HARDNESS (MG/L)			DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)	
JAN	110.000	108.000	115.000	123.000	114.000	119.000
FEB	115.000	116.000	116.000	113.000	114.000	115.000
MAR	117.000	119.000	.	122.000	.	122.000
APR	121.000	120.000	122.000	121.000	119.000	119.000
MAY	111.000	123.000	117.000	115.000	115.000	114.000
JUN	115.000	115.000	116.000	116.000	117.000	117.000
JUL	113.000	113.000	114.000	116.000	116.000	116.000
AUG	103.000	106.000	112.000	111.000	116.000	112.000

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DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	107.000	109.000	108.000	110.000	109.000	109.000
OCT	104.000	102.000	104.000	103.000	105.000	105.000
NOV	106.000	112.000	112.000	114.000	116.000	111.000
DEC	125.000	126.000	124.500	121.800	124.600	124.900
·IONCAL (DMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	5.766	5.055	.300	6.579	2.392	2.068
FEB	.195	.698	.170	1.031	.156	.765
MAR	1.099	1.673	.	1.041	.	1.214
APR	6.282	6.387	5.667	5.137	4.482	4.204
MAY	9.385	5.679	2.142	1.394	.813	1.761
JUN	2.196	2.391	2.693	2.616	2.407	2.086
JUL	4.267	2.947	1.086	3.979	2.708	2.533
AUG	.000 NAF	1.042	.474	.336	2.103	.591
SEP	1.994	.787	2.336	.869	2.844	1.975
OCT	2.880	2.591	.000 NAF	.000 NAF	.000 NAF	.000 NAF
NOV	5.194	2.935	4.145	3.276	2.590	3.740
DEC	6.159	4.196	3.651	2.015	2.380	4.640
LANGELIERS INDEX (DMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	.210	.059	.003	.243	.169	.138
FEB	.268	-.196	.046	.018	.090	.014
MAR	.290	.062	.	.117	.	.150
APR	.302	.183	.165	.118	.141	.179
MAY	.229	.254	.278	.277	.176	.208
JUN	.240	.045	.227	.167	.226	.250
JUL	.075	-.038	-.123	-.053	-.034	-.053
AUG	.	.163	.278	.262	.281	.240
SEP	.121	.114	-.001	.082	.151	-.001
OCT	.101	.015	.	.	.	.
NOV	.241	.032	.147	.196	.212	.165
DEC	.387	.266	.246	.254	.219	.227
MAGNESIUM (MG/L)			DET'N LIMIT = .050		GUIDELINE = 30 (F2)	
JAN	8.100	8.300	8.000	8.000	8.200	8.100
FEB	8.300	8.400	8.000	8.100	8.200	8.300
MAR	7.900	8.200	.	8.000	.	8.000
APR	8.300	8.200	8.200	8.100	8.100	8.100
MAY	8.500	8.500	8.500	8.500	8.500	8.500
JUN	8.300	8.300	8.100	8.100	8.200	8.000
JUL	8.000	8.000	7.700	7.800	7.800	7.900
AUG	7.700	7.600	7.680	7.670	7.840	7.520
SEP	7.800	7.900	7.600	7.600	7.500	7.600
OCT	7.800	7.600	7.500	7.400	7.400	7.600
NOV	7.900	7.900	8.000	7.800	7.900	7.900
DEC	8.300	8.200	7.800	7.800	8.350	7.850

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SODIUM (MG/L)			DET'N LIMIT = .200		GUIDELINE = 200 (C3)	
JAN	7.400	7.600	7.400	7.200	7.200	7.400
FEB	6.400	6.600	6.200	6.200	7.000	6.400
MAR	6.800	6.800	.	6.800	.	7.000
APR	8.600	8.800	8.600	8.200	8.400	8.400
MAY	7.200	7.400	7.800	7.800	7.600	7.200
JUN	6.600	6.800	6.800	6.800	6.600	6.800
JUL	6.600	6.600	6.200	6.200	6.400	6.200
AUG	6.000	6.200	6.000	5.600	6.000	6.000
SEP	7.000	7.200	7.400	7.400	7.200	7.400
OCT	5.400	5.400	5.600	6.000	5.600	5.600
NOV	7.600	7.700	7.000	7.400	7.300	6.800
DEC	8.200	7.800	8.600	8.300	7.700	7.700
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)	
JAN	.026	.008 <T	.008 <T	.006 <T	.006 <T	.006 <T
FEB	.010	.006 <T	.008 <T	.010	.006 <T	.006 <T
MAR	.006 <T	BDL	.	BDL	.	BDL
APR	.018	.002 <T	.002 <T	.002 <T	BDL	BDL
MAY	.018	.004 <T	.004 <T	.002 <T	.004 <T	.004 <T
JUN	.002 <T	.006 <T	BDL	.020	BDL	BDL
JUL	.018	.004 <T	.002 <T	.002 <T	.008 <T	.006 <T
AUG	.018	.006 <T	.006 <T	.006 <T	.012	.004 <T
SEP	.002 <T	.002 <T	BDL	BDL	.006 <T	.002 <T
OCT	BDL	BDL	ISM	ISM	ISM	ISM
NOV	BDL	.002 <T	.014	.002 <T	.002 <T	.002 <T
DEC	BDL	BDL	.002 <T	BDL	.002 <T	BDL
NITRITE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)	
JAN	.032	.001 <T	.003 <T	.002 <T	.004 <T	.002 <T
FEB	.008	.001 <T	.002 <T	.003 <T	.003 <T	.002 <T
MAR	.012	.002 <T	.	.003 <T	.	.003 <T
APR	.006	.001 <T	.002 <T	.001 <T	.001 <T	.001 <T
MAY	.006	.001 <T	.002 <T	.001 <T	.003 <T	.002 <T
JUN	.084	.002 <T	.003 <T	.002 <T	.003 <T	.002 <T
JUL	.014	BDL	BDL	.001 <T	.002 <T	.001 <T
AUG	.018	.001 <T	.001 <T	.001 <T	.001 <T	.002 <T
SEP	.009	.003 <T	.003 <T	.003 <T	.003 <T	.004 <T
OCT	.006	BDL	ISM	ISM	ISM	ISM
NOV	.003 <T	BDL	.001 <T	.001 <T	.001 <T	.002 <T
DEC	.018	.001 <T	.001 <T	.001 <T	.001 <T	BDL
TOTAL NITRATES (MG/L)			DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)	
JAN	.690	.680	.625	.635	.650	.645
FEB	.635	.685	.640	.645	.645	.650
MAR	.625	.620	.	.620	.	.625
APR	.690	.670	.640	.640	.655	.685

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
MAY	.550	.580	.655	.645	.660	.595
JUN	.705	.620	.595	.580	.570	.585
JUL	.355	.360	.355	.195	.385	.375
AUG	.360	.370	.390	.380	.435	.380
SEP	.310	.275	.260	.275	.295	.255
OCT	.190	.200	ISN	ISN	ISN	ISN
NOV	.345	.320	.290	.295	.300	.255
DEC	.425	.385	.370	.380	.355	.360
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = .020		GUIDELINE = N/A	
JAN	.210	.160	.160	.160	.110	.130
FEB	.270	.110	.140	.120	.130	.120
MAR	.270	.130	.	.140	.	.150
APR	.200	.160	.160	.150	.160	.180
MAY	.220	.110	.160	.130	.250	.160
JUN	.320	.140	.150	.150	.150	.150
JUL	.260	.130	.210	.130	.190	.130
AUG	.300	.130	.130	.140	.160	.130
SEP	.270	.130	.130	.120	.130	.120
OCT	.210	.140	ISN	ISN	ISN	ISN
NOV	.240	.100	.150	.120	.120	.090 <T
DEC	.380	.150	.100	.090 <T	.310	.100
PH (DMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)	
JAN	8.190	8.110	8.000	8.200	8.180	8.120
FEB	8.220	7.810	8.040	8.030	8.100	8.020
MAR	8.220	8.040	.	8.070	.	8.100
APR	8.240	8.180	8.140	8.100	8.130	8.170
MAY	8.270	8.230	8.300	8.310	8.210	8.250
JUN	8.200	8.070	8.230	8.170	8.220	8.240
JUL	8.040	7.990	7.880	7.950	7.960	7.940
AUG	IIS	8.220	8.290	8.280	8.270	8.250
SEP	8.140	8.180	8.060	8.130	8.200	8.050
OCT	8.130	8.110	ISN	ISN	ISN	ISN
NOV	8.250	8.080	8.170	8.210	8.210	8.190
DEC	8.300	8.230	8.200	8.220	8.170	8.180
PHOSPHORUS FIL REACT (MG/L)			DET'N LIMIT = .0005		GUIDELINE = N/A	
JAN	.001 <T	BDL	.	.	.	.
FEB	.003	.000	.	.	.	.
MAR	.001 <T	BDL	.	.	.	.
APR	BDL	BDL	.	.	.	.
MAY	BDL	BDL	.	.	.	.
JUN	.020	.000 <T	.	.	.	.
JUL	BDL	BDL	.	.	.	.
AUG	.001 <T	BDL	.	.	.	.
SEP	.011	.002 <T	.	.	.	.

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DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
OCT	.001 <T	BDL	.	.	.	.
NOV	.007	.000 <T	.	.	.	.
DEC	.008	BDL	.	.	.	.
PHOSPHORUS TOTAL (MG/L)			DET'N LIMIT = .002		GUIDELINE = .40 (F2)	
JAN	.011	.002 <T	.	.	.	.
FEB	.031	.002 <T	.	.	.	.
MAR	.019	BDL	.	.	.	.
APR	.005 <T	BDL	.	.	.	.
MAY	.005 <T	BDL	.	.	.	.
JUN	.033	.005 <T	.	.	.	.
JUL	.022	.003 <T	.	.	.	.
AUG	.028	.002 <T	.	.	.	.
SEP	.044	.003 <T	.	.	.	.
OCT	.018	BDL	.	.	.	.
NOV	.039	BDL	.	.	.	.
DEC	.048	.002 <T	.	.	.	.
SULPHATE (MG/L)			DET'N LIMIT = .200		GUIDELINE = 500. (A3)	
JAN	18.880	25.860	25.070	24.720	26.140	26.140
FEB	17.140	28.340	25.440	24.890	25.700	27.030
MAR	18.910	28.420	.	27.430	.	27.120
APR	17.590	26.250	26.410	26.310	26.540	26.310
MAY	16.880	27.360	27.620	27.420	28.170	27.260
JUN	18.210	27.400	26.610	26.870	26.470	27.280
JUL	17.050	26.830	26.600	26.400	26.500	26.890
AUG	16.660	25.450	25.720	25.550	26.010	25.640
SEP	17.360	27.300	27.380	27.040	26.690	26.080
OCT	16.430	24.960	ISM	ISM	ISM	ISM
NOV	17.120	32.160	28.590	29.070	29.110	28.200
DEC	18.950	31.230	29.070	28.090	28.140	28.400
TURBIDITY (FTU)			DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)	
JAN	3.100	.250 <T	.480	.600	.620	.260
FEB	21.000	.160	.600	.310	.660	.260
MAR	11.300	.210 <T	.	.300	.	.240 <T
APR	1.310	.580	1.750 RRV	.350	.840	.580
MAY	.960	.750	.760	.520	1.280	1.010
JUN	11.400	.280	.260	.190 <T	.240 <T	.350
JUL	3.500	.290	.480	.220 <T	.400	.360
AUG	115	.720	.480	.400	.410	.310
SEP	19.100	.420	.640	.310	.780	.300
OCT	3.900	.300	ISM	ISM	ISM	ISM
NOV	34.000	.200	.380	.170	.210	.120
DEC	50.000	.310	.550	.310	.200 <T	.190 <T

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DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
METALS						
SILVER (UG/L)				DET'N LIMIT = .020	GUIDELINE = 50. (A1)	
JAN	BDL	BDL	BDL	BDL	.690	.040 <T
FEB	BDL	.030 <T	BDL	BDL	.050 <T	BDL
MAR	.040 <T	.050 <T	.	.060 <T	.	.050 <T
APR	BDL	BDL	.050 <T	BDL	.630	.030 <T
MAY	BDL	BDL	.100 <T	BDL	.060 <T	BDL
JUN	BDL	BDL	BDL	.030 <T	.070 <T	BDL
JUL	.040 <T	.040 <T	.040 <T	BDL	.050 <T	.030 <T
AUG	BDL	BDL	BDL	BDL	.040 <T	BDL
SEP	BDL	BDL	.030 <T	BDL	BDL	BDL
OCT	BDL	BDL	BDL	BDL	BDL	BDL
NOV	.030 <T	BDL	BDL	BDL	BDL	BDL
DEC	BDL	BDL	BDL	BDL	.070 <T	BDL
ALUMINUM (UG/L)				DET'N LIMIT = .050	GUIDELINE = 100.(A4)	
JAN	42.920	18.560	16.240	13.920	16.240	13.920
FEB	150.800	18.560	16.240	16.240	19.720	15.080
MAR	95.120	23.200	.	20.880	.	19.720
APR	35.960	25.520	54.520	20.880	33.640	19.720
MAY	32.480	34.800	26.680	26.680	41.760	29.000
JUN	170.000	51.000	39.000	39.000	46.000	43.000
JUL	64.000	95.000	51.000	67.000	61.000	68.000
AUG	57.000	78.000	53.000	57.000	61.000	63.000
SEP	180.000	81.000	62.000	63.000	69.000	65.000
OCT	61.000	64.000	55.000	53.000	57.000	53.000
NOV	240.000	25.000	30.000	27.000	34.000	31.000
DEC	280.000	19.000	20.000	20.000	39.000	18.000
ARSENIC (UG/L)				DET'N LIMIT = 0.050	GUIDELINE = 50.0 (A1)	
JAN	.360 <T	.190 <T	.130 <T	.200 <T	.190 <T	.150 <T
FEB	.760 <T	.210 <T	.290 <T	.130 <T	.080 <T	.330 <T
MAR	.840 <T	.610 <T	.	.650 <T	.	.380 <T
APR	.960 <T	.450 <T	.700 <T	.610 <T	.500 <T	.650 <T
MAY	.770 <T	.570 <T	.390 <T	.630 <T	.630 <T	.450 <T
JUN	1.200	.950 <T	.530 <T	.570 <T	.450 <T	.560 <T
JUL	1.300	.680 <T	.700 <T	.500 <T	.690 <T	.510 <T
AUG	1.400	.810 <T	.610 <T	.480 <T	.740 <T	.850 <T
SEP	1.400	.410 <T	.380 <T	.580 <T	.640 <T	.570 <T
OCT	1.000 <T	.390 <T	.310 <T	.430 <T	.340 <T	.380 <T
NOV	.530 <T	.080 <T	.130 <T	BDL	.160 <T	.120 <T
DEC	.810 <T	.220 <T	.230 <T	.290 <T	.280 <T	.160 <T
BARIUM (UG/L)				DET'N LIMIT = 0.020	GUIDELINE = 1000. (A1)	
JAN	17.000	16.000	16.000	16.000	15.000	15.000
FEB	18.000	16.000	15.000	15.000	15.000	15.000
MAR	17.000	15.000	.	15.000	.	15.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
			SITE 1		SITE 2	
	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
APR	17.000	16.000	15.000	15.000	16.000	15.000
MAY	15.000	16.000	15.000	16.000	16.000	15.000
JUN	19.000	18.000	18.000	18.000	18.000	17.000
JUL	16.000	16.000	17.000	16.000	16.000	16.000
AUG	17.000	17.000	18.000	18.000	19.000	18.000
SEP	19.000	17.000	18.000	17.000	18.000	17.000
OCT	16.000	16.000	16.000	16.000	16.000	15.000
NOV	18.000	16.000	17.000	16.000	16.000	16.000
DEC	20.000	16.000	16.000	16.000	17.000	16.000
BORON (UG/L)			DET'N LIMIT = 0.200 GUIDELINE = 5000. (A1)			
JAN	18.000 <T	19.000 <T	30.000	41.000	23.000	18.000 <T
FEB	54.000	22.000	54.000	61.000	28.000	64.000
MAR	38.000	54.000	.	57.000	.	56.000
APR	200.000	26.000	180.000	200.000	43.000	38.000
MAY	170.000	170.000	21.000	51.000	150.000	22.000
JUN	18.000 <T	18.000 <T	19.000 <T	19.000 <T	20.000 <T	18.000 <T
JUL	30.000	19.000 <T	32.000	31.000	35.000	32.000
AUG	18.000 <T	18.000 <T	18.000 <T	19.000 <T	44.000	40.000
SEP	29.000	20.000 <T	22.000	17.000 <T	32.000	33.000
OCT	22.000	23.000	20.000 <T	23.000	25.000	20.000 <T
NOV	15.000 <T	16.000 <T	19.000 <T	16.000 <T	17.000 <T	17.000 <T
DEC	18.000 <T	18.000 <T	18.000 <T	16.000 <T	53.000	19.000 <T
BERYLLIUM (UG/L)			DET'N LIMIT = 0.010 GUIDELINE = N/A			
JAN	.020 <T	BDL	BDL	.050 <T	.030 <T	BDL
FEB	.060 <T	BDL	.150 <T	.060 <T	BDL	.090 <T
MAR	.170 <T	.120 <T	.	.050 <T	.	.090 <T
APR	.130 <T	.120 <T	.250 <T	.360 <T	.090 <T	.070 <T
MAY	.300 <T	.390 <T	.050 <T	BDL	.200 <T	.140 <T
JUN	.060 <T	.050 <T	.070 <T	.030 <T	.020 <T	.030 <T
JUL	.080 <T	.070 <T	.090 <T	.060 <T	.080 <T	.120 <T
AUG	BDL	BDL	BDL	BDL	BDL	.030 <T
SEP	BDL	BDL	BDL	BDL	BDL	.040 <T
OCT	.040 <T	BDL	BDL	.020 <T	BDL	BDL
NOV	.050 <T	BDL	BDL	.020 <T	BDL	BDL
DEC	.020 <T	BDL	BDL	BDL	BDL	BDL
CADMIUM (UG/L)			DET'N LIMIT = 0.050 GUIDELINE = 5.000 (A1)			
JAN	.060 <T	BDL	.080 <T	BDL	.090 <T	.070 <T
FEB	BDL	BDL	BDL	BDL	BDL	.080 <T
MAR	BDL	.070 <T	.	.070 <T	.	BDL
APR	BDL	BDL	.160 <T	.110 <T	.090 <T	.060 <T
MAY	BDL	BDL	.070 <T	BDL	BDL	BDL
JUN	.090 <T	.120 <T	.100 <T	BDL	BDL	BDL
JUL	BDL	BDL	BDL	BDL	.600	BDL
AUG	.080 <T	BDL	BDL	BDL	.210 <T	BDL

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DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	BDL	BDL	BDL	BDL	.180 <T	BDL
OCT	BDL	BDL	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	BDL	.070 <T	BDL
DEC	BDL	.060 <T	BDL	BDL	BDL	BDL
COBALT (UG/L)				DET'N LIMIT = 0.020 GUIDELINE = N/A		
JAN	.180 <T	.150 <T	.130 <T	.120 <T	.170 <T	.100 <T
FEB	.260 <T	.070 <T	.080 <T	.050 <T	.050 <T	BDL
MAR	.300 <T	.140 <T	.	.170 <T	.	.110 <T
APR	.040 <T	.060 <T	.070 <T	.040 <T	.090 <T	.080 <T
MAY	.130 <T	.100 <T	.110 <T	.130 <T	.150 <T	.120 <T
JUN	BDL	.030 <T	BDL	BDL	.050 <T	.030 <T
JUL	BDL	BDL	BDL	BDL	BDL	BDL
AUG	.120 <T	.090 <T	.130 <T	.090 <T	.110 <T	.100 <T
SEP	.400 <T	.170 <T	.240 <T	.160 <T	.180 <T	.150 <T
OCT	.060 <T	.050 <T	.080 <T	.030 <T	.180 <T	.040 <T
NOV	.430 <T	.070 <T	.070 <T	.060 <T	.100 <T	.040 <T
DEC	.570 <T	.050 <T	.110 <T	.070 <T	3.800	.360 <T
CHROMIUM (UG/L)				DET'N LIMIT = 0.100 GUIDELINE = 50. (A1)		
JAN	.500 <T	.230 <T	3.400	6.000	1.200	.350 <T
FEB	4.200	.400 <T	3.800	4.600	.960 <T	4.800
MAR	4.400	6.800	.	7.000	.	7.100
APR	7.800	.350 <T	7.000	7.200	.990 <T	.750 <T
MAY	6.600	6.500	.350 <T	1.700	5.400	.510 <T
JUN	.480 <T	.200 <T	.320 <T	.280 <T	.310 <T	.270 <T
JUL	4.500	.890 <T	4.300	4.100	4.400	4.900
AUG	.570 <T	.250 <T	.290 <T	.420 <T	4.100	4.200
SEP	3.000	.520 <T	1.300	.140 <T	3.000	3.200
OCT	3.100	2.800	.660 <T	2.800	3.400	1.400
NOV	.600 <T	.480 <T	.600 <T	.340 <T	.370 <T	.330 <T
DEC	.890 <T	.140 <T	BDL	BDL	BDL	BDL
COPPER (UG/L)				DET'N LIMIT = .100 GUIDELINE = 1000 (A3)		
JAN	1.200	1.700	130.000	16.000	94.000	11.000
FEB	2.100	2.800	170.000	18.000	150.000	13.000
MAR	1.800	1.700	.	19.000	.	12.000
APR	1.200	1.700	280.000	22.000	67.000	10.000
MAY	1.600	4.100	140.000	22.000	130.000	10.000
JUN	1.600	2.800	150.000	26.000	100.000	12.000
JUL	1.400	3.600	310.000	18.000	100.000	12.000
AUG	.860 <T	3.200	150.000	19.000	34.000	4.200
SEP	1.500	3.500	120.000	19.000	45.000	5.100
OCT	1.200	5.900	180.000	22.000	30.000	6.700
NOV	1.800	7.200	240.000	32.000	50.000	10.000
DEC	2.100	1.400	160.000	27.000	400.000	74.000

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DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
IRON (UG/L)			DET'N LIMIT = 4.000 GUIDELINE = 300. (A3)			
JAN	72.000	BDL	14.000 <T	12.000 <T	BDL	5.500 <T
FEB	290.000	9.300 <T	26.000 <T	26.000 <T	13.000 <T	13.000 <T
MAR	180.000	BDL	.	14.000 <T	.	BDL
APR	25.000 <T	BDL	140.000	11.000 <T	19.000 <T	BDL
MAY	22.000 <T	BDL	8.900 <T	12.000 <T	16.000 <T	BDL
JUN	160.000	BDL	25.000 <T	20.000 <T	13.000 <T	10.000 <T
JUL	97.000	BDL	9.800 <T	13.000 <T	10.000 <T	9.000 <T
AUG	71.000	BDL	9.000 <T	6.600 <T	BDL	BDL
SEP	270.000	BDL	12.000 <T	6.900 <T	5.800 <T	BDL
OCT	89.000	BDL	37.000 <T	12.000 <T	5.500 <T	7.100 <T
NOV	490.000	BDL	12.000 <T	11.000 <T	7.400 <T	9.300 <T
DEC	570.000	BDL	14.000 <T	17.000 <T	11.000 <T	6.100 <T
MERCURY (UG/L)			DET'N LIMIT = 0.010 GUIDELINE = 1.000 (A1)			
JAN	BDL	BDL	.	BDL	.	BDL
FEB	.220	.020 <T	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	ISS	ISS	.	ISS	.	ISS
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	.030 <T	.020 <T	.	BDL	.	.020 <T
MANGANESE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 50.0 (A3)			
JAN	3.300	1.500	1.500	1.100	.790	.560
FEB	13.000	1.600	1.600	1.700	.480 <T	.420 <T
MAR	9.900	1.300	.	1.500	.	.640
APR	1.300	.950	5.600	1.700	1.800	.390 <T
MAY	1.500	1.200	1.500	1.200	1.800	.600
JUN	9.200	4.200	3.700	3.300	1.700	1.200
JUL	7.800	.780	1.800	1.200	.990	.580
AUG	6.100	.580	1.600	1.200	1.000	.390 <T
SEP	17.000	.900	1.500	1.200	.950	.380 <T
OCT	4.500	.650	3.400	1.000	.420 <T	.310 <T
NOV	24.000	2.100	1.500	1.300	.670	.360 <T
DEC	23.000	3.500	2.400	2.200	11.000	1.400
MOLYBDENUM (UG/L)			DET'N LIMIT = 0.020 GUIDELINE = N/A			
JAN	.800	.810	.790	.820	.830	.840
FEB	.580	.760	.790	.810	.870	.810
MAR	.930	1.100	.	1.000	.	1.100
APR	1.000	.930	.810	.960	.910	.970

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
MAY	.810	.800	.850	.800	.860	.740
JUN	1.100	1.300	1.300	1.300	1.200	1.200
JUL	1.000	.980	1.100	1.100	1.100	.990
AUG	.940	.980	1.100	.930	1.000	1.000
SEP	.690	.990	.960	.900	1.100	1.000
OCT	.590	.720	.700	.670	.720	.690
NOV	.210 <T	.590	.600	.700	.580	.670
DEC	.300 <T	.740	.630	.670	.610	.750
NICKEL (UG/L)				DET'N LIMIT = 0.100 GUIDELINE = 50. (F3)		
JAN	.600 <T	.590 <T	4.500	.880 <T	1.500 <T	.600 <T
FEB	.530 <T	BDL	4.600	BDL	.880 <T	BDL
MAR	1.200 <T	1.200 <T	.	1.500 <T	.	1.100 <T
APR	.950 <T	.640 <T	7.500	1.100 <T	1.300 <T	.890 <T
MAY	1.200 <T	1.200 <T	8.800	1.200 <T	2.500	1.100 <T
JUN	BDL	BDL	7.300	BDL	1.500 <T	.900 <T
JUL	BDL	BDL	9.500	BDL	1.300 <T	BDL
AUG	1.300 <T	.880 <T	6.700	.950 <T	2.700	.890 <T
SEP	1.500 <T	.940 <T	10.000	1.300 <T	2.300	1.200 <T
OCT	.250 <T	.170 <T	13.000	.470 <T	1.600 <T	.370 <T
NOV	1.600 <T	.570 <T	3.000	2.000 <T	1.900 <T	1.200 <T
DEC	1.400 <T	.350 <T	7.300	1.500 <T	8.300	1.600 <T
LEAD (UG/L)				DET'N LIMIT = 0.050 GUIDELINE = 50. (A1)		
JAN	.280	.080 <T	1.100	.280	1.200	.240
FEB	1.200	BDL	1.400	.240	1.200	.120 <T
MAR	.850	.030 <T	.	.400	.	.200 <T
APR	.300	.530	12.000	.590	2.600	.340
MAY	.490	.470	1.800	.600	5.500	.500
JUN	.860	.230	1.700	.640	5.400	.580
JUL	.760	.640	3.400	.850	5.600	.870
AUG	.490	.930	2.200	.960	2.300	.620
SEP	1.300	.450	2.600	.800	3.200	.490
OCT	.160 <T	.270	2.200	.330	.850	.270
NOV	1.700	.430	2.200	.650	1.500	.230
DEC	1.900	1.400	2.000	.600	2.300	.430 <T
ANTIMONY (UG/L)				DET'N LIMIT = .050 GUIDELINE = 146. (D4)		
JAN	.430	.420	.430	.500	.410	.450
FEB	.330	.510	.530	.490	.510	.510
MAR	.510	.620	.	.560	.	.550
APR	.600	.600	.600	.620	.510	.560
MAY	.710	.700	.850	.650	.720	.710
JUN	.800	.840	.910	.950	1.100	.970
JUL	.600	.680	.760	.760	.730	.850
AUG	.490	.590	.730	.670	.710	.670
SEP	.530	.580	.700	.730	.680	.670

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DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
OCT	.540	.480	.540	.510	.570	.490
NOV	.270	.320	.380	.360	.380	.320
DEC	.270	.430	.460 <T	.470 <T	.340 <T	.430 <T
SELENIUM (UG/L)			DET'N LIMIT = 0.200 GUIDELINE = 10. (A1)			
JAN	.600 <T	.960 <T	1.800 <T	1.200 <T	2.000 <T	1.100 <T
FEB	1.300 <T	1.300 <T	1.700 <T	2.100 <T	3.200 <T	2.300 <T
MAR	BDL	1.100 <T	.	2.500 <T	.	1.300 <T
APR	3.000 <T	4.700 <T	5.500 <T	4.400 <T	4.900 <T	4.400 <T
MAY	3.800 <T	3.900 <T	4.500 <T	4.700 <T	5.000 <T	3.800 <T
JUN	.400 <T	2.100 <T	1.300 <T	1.100 <T	3.700 <T	4.800 <T
JUL	1.300 <T	3.200 <T	3.800 <T	3.700 <T	6.000	4.400 <T
AUG	BDL	1.500 <T	2.300 <T	BDL	2.200 <T	3.800 <T
SEP	BDL	BDL	1.100 <T	BDL	1.200 <T	1.400 <T
OCT	BDL	BDL	BDL	BDL	1.100 <T	BDL
NOV	BDL	BDL	BDL	BDL	BDL	BDL
DEC	BDL	BDL	BDL	BDL	BDL	BDL
STRONTIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A			
JAN	130.000	130.000	120.000	130.000	130.000	130.000
FEB	130.000	130.000	120.000	120.000	120.000	130.000
MAR	140.000	140.000	.	140.000	.	140.000
APR	130.000	130.000	130.000	120.000	120.000	120.000
MAY	120.000	130.000	130.000	130.000	130.000	130.000
JUN	130.000	130.000	130.000	120.000	120.000	120.000
JUL	110.000	120.000	120.000	120.000	120.000	120.000
AUG	120.000	120.000	120.000	120.000	120.000	130.000
SEP	120.000	120.000	110.000	120.000	120.000	120.000
OCT	110.000	110.000	110.000	110.000	110.000	110.000
NOV	120.000	120.000	120.000	120.000	120.000	120.000
DEC	120.000	120.000	120.000	120.000	120.000	120.000
TITANIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A			
JAN	3.200	2.000 <T	2.000 <T	2.100	2.400	2.000 <T
FEB	3.900	1.800 <T	1.900 <T	1.600 <T	1.900 <T	1.900 <T
MAR	3.800	2.000 <T	.	2.300	.	2.100
APR	6.700	5.600	6.000	6.000	6.100	6.000
MAY	4.600	4.500	4.200	4.000	4.500	4.600
JUN	8.300	4.600	4.900	4.800	4.800	4.700
JUL	5.700	3.600	4.100	4.200	4.500	4.500
AUG	4.100	3.000	3.400	3.000	3.400	3.400
SEP	6.000	3.900	3.800	3.800	4.000	3.900
OCT	3.400	2.000 <T	2.200	2.200	2.300	2.100
NOV	5.000	1.800 <T	2.500	1.800 <T	2.200	1.900 <T
DEC	4.800	2.400	2.600 <T	2.400 <T	3.200 <T	2.600 <T
THALLIUM (UG/L)			DET'N LIMIT = .010 GUIDELINE = 13. (D4)			

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	BDL	BDL	.040 <T	BDL	.040 <T	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	.090 <T	.110 <T	.110 <T	.050 <T	.060 <T	.140 <T
MAY	BDL	BDL	.050 <T	.030 <T	BDL	BDL
JUN	.070 <T	.090 <T	.060 <T	.070 <T	.070 <T	.030 <T
JUL	BDL	BDL	BDL	BDL	BDL	BDL
AUG	BDL	BDL	BDL	BDL	BDL	BDL
SEP	BDL	.040 <T	.080 <T	.050 <T	BDL	.040 <T
OCT	BDL	BDL	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	BDL	BDL	BDL
DEC	.020 <T	BDL	BDL	BDL	BDL	BDL
URANIUM (UG/L)				DET'N LIMIT = .020	GUIDELINE = 100.(B1)	
JAN	.330	.100 <T	.050 <T	.060 <T	.080 <T	.080 <T
FEB	.290	.090 <T	.120 <T	.060 <T	.030 <T	.090 <T
MAR	.470	.210	.	.240	.	.220
APR	.530	.240	.230	.190 <T	.230	.250
MAY	.340	.050 <T	.160 <T	.150 <T	.120 <T	.160 <T
JUN	.480	.080 <T	.100 <T	.050 <T	.110 <T	BDL
JUL	.510	.140 <T	.150 <T	.180 <T	.200 <T	.140 <T
AUG	.370	BDL	.100 <T	.040 <T	.060 <T	BDL
SEP	.480	.100 <T	.140 <T	.140 <T	.160 <T	.140 <T
OCT	.220	.060 <T	.030 <T	.030 <T	BDL	BDL
NOV	.250	BDL	.030 <T	.040 <T	.060 <T	.070 <T
DEC	.320	.040 <T	.060 <T	.060 <T	BDL	BDL
VANADIUM (UG/L)				DET'N LIMIT = .050	GUIDELINE = N/A	
JAN	.320 <T	.600	.490 <T	.480 <T	.590	.500 <T
FEB	.460 <T	.300 <T	.330 <T	.330 <T	.390 <T	.370 <T
MAR	.430 <T	.470 <T	.	.450 <T	.	.450 <T
APR	.230 <T	.500 <T	1.300	.460 <T	.590	.480 <T
MAY	.260 <T	.730	.550	.550	.710	.640
JUN	.620	.680	.640	.660	.790	.700
JUL	.520	.720	.670	.670	.770	.790
AUG	.590	.850	.740	.750	.850	.870
SEP	.970	.920	.830	.810	.840	.850
OCT	.440 <T	.540	.650	.550	.630	.610
NOV	.780	.490 <T	.470 <T	.480 <T	.530	.520
DEC	.870	.480 <T	.430 <T	.420 <T	.390 <T	.410 <T
ZINC (UG/L)				DET'N LIMIT = .001	GUIDELINE = 5000. (A3)	
JAN	2.100	1.600	9.700	1.200	23.000	2.000
FEB	4.100	2.300	4.100	1.500	19.000	2.300
MAR	3.400	1.500	.	.990 <T	.	.970 <T
APR	1.800	1.800	7.900	1.800	9.200	2.500
MAY	2.800	2.500	5.400	1.800	39.000	2.900

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
JUN	3.200	3.400	5.800	2.400	28.000	2.700
JUL	2.500	3.100	10.000	2.400	55.000	3.200
AUG	1.700	2.700	6.000	1.500	15.000	1.600
SEP	4.000	3.300	7.900	1.700	33.000	1.900
OCT	1.300	10.000	6.200	.980 <T	12.000	1.400
NOV	6.100	20.000	6.700	2.600	12.000	4.800
DEC	6.900	1.400	7.200	1.900 <T	30.000	3.400

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
PESTICIDES & PCB						
ALPHA BHC (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 700 (G)	
JAN	BDL	2.000 <T	.	1.000 <T	.	1.000 <T
FEB	1.000 <T	BDL	.	1.000 <T	.	1.000 <T
MAR	2.000 <T	2.000 <T	.	2.000 <T	.	2.000 <T
APR	2.000 <T	IPE	.	2.000 <T	.	1.000 <T
MAY	2.000 <T	BDL	.	BDL	.	BDL
JUN	2.000 <T	BDL	.	1.000 <T	.	2.000 <T
JUL	2.000 <T	5.000 <T	.	6.000 <T	.	BDL
AUG	1.000 <T	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	INR	.	INR
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	1.000 <T	.	BDL	.	BDL
DEC	2.000 <T	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
PHENOLICS (UG/L PHENOLICS)			DET'N LIMIT = 0.2		GUIDELINE = 2.00 (A3)	
JAN	.800	.800	.	.	.	.
FEB	1.600	1.000	.	.	.	.
MAR	1.200	.800 <T	.	.	.	.
APR	1.000	.600 <T	.	.	.	IPR
MAY	1.200	1.000 <T	.	.	.	.
JUN	1.000 <T	5.000	.	.	.	.
JUL	.600 <T	.600 <T	.	.	.	.
AUG	.600 <T	2.200	.	.	.	.
SEP	5.800	.600 <T	.	.	.	.
OCT	1.000 <T	.600 <T	.	.	.	.
NOV	1.400	.400 <T	.	.	.	.
DEC	.600 <T	BDL	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
VOLATILES						
BENZENE (UG/L)				DET'N LIMIT = .050	GUIDELINE = 5.0 (81)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	.100 <T	BDL	.	.100 <T	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	.	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
TOLUENE (UG/L)				DET'N LIMIT = .050	GUIDELINE = 24.0 (84)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	.050 <T	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	.050 <T
APR	BDL	BDL	.	.050 <T	.	.100 <T
MAY	BDL	BDL	.	BDL	.	.050 <T
JUN	BDL	.050 <T	.	.050 <T	.	BDL
JUL	BDL	.050 <T	.	.050 <T	.	.150 <T
AUG	.050 <T	.	.	.	.	BDL
SEP	.050 <T	BDL	.	.050 <T	.	BDL
OCT	BDL	.050 <T	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
ETHYLBENZENE (UG/L)				DET'N LIMIT = .050	GUIDELINE = 2.4 (84)	
JAN	BDL	.100 <T	.	.050 <T	.	.050 <T
FEB	BDL	.050 <T	.	.050 <T	.	.050 <T
MAR	BDL	BDL	.	.100 <T	.	.050 <T
APR	BDL	BDL	.	.050 <T	.	.100 <T
MAY	BDL	BDL	.	.100 <T	.	BDL
JUN	BDL	.050 <T	.	BDL	.	BDL
JUL	BDL	.050 <T	.	.050 <T	.	.050 <T
AUG	BDL	.	.	.	.	BDL
SEP	BDL	BDL	.	.050 <T	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
O-XYLENE (UG/L)				DET'N LIMIT = .050	GUIDELINE = 300 (84)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	.050 <T	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	BDL	BDL	.	BDL	.	.050 <T
MAY	.050 <T	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	.050 <T
JUL	BDL	BDL	.	.050 <T	.	.050 <T
AUG	BDL	.	.	.	.	BDL
SEP	BDL	BDL	.	.100 <T	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
STYRENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 46.5 (D2)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	.150 <T
MAR	BDL	BDL	.	.050 <T	.	.100 <T
APR	.100 <T	BDL	.	.100 <T	.	.200 <T
MAY	BDL	BDL	.	.100 <T	.	BDL
JUN	BDL	.100 <T	.	.050 <T	.	.050 <T
JUL	BDL	BDL	.	.050 <T	.	.050 <T
AUG	BDL	.	.	.	.	.050 <T
SEP	BDL	.100 <T	.	.100 <T	.	.100 <T
OCT	.100 <T	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
CHLOROFORM (UG/L)				DET'N LIMIT = .100 GUIDELINE = 350 (A1+)		
JAN	BDL	7.300	.	6.600	.	7.600
FEB	BDL	11.700	.	10.000	.	9.700
MAR	BDL	8.700	.	11.000	.	10.000
APR	BDL	6.800	.	7.500	.	9.300
MAY	BDL	11.300	.	12.300	.	12.500
JUN	BDL	5.400	.	7.200	.	8.700
JUL	BDL	16.300	.	15.300	.	17.400
AUG	BDL	.	.	.	.	14.500
SEP	BDL	14.800	.	13.000	.	13.600
OCT	BDL	10.000	.	10.400	.	11.300
NOV	BDL	7.100	.	9.400	.	12.000
DEC	BDL	7.400	.	5.200	.	6.600
DICHLOROBROMOMETHANE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 350 (A1+)		
JAN	BDL	6.800	.	6.950	.	8.200
FEB	BDL	8.550	.	8.300	.	7.800
MAR	BDL	7.950	.	8.800	.	7.800
APR	BDL	6.850	.	7.100	.	8.100
MAY	BDL	8.700	.	9.300	.	8.950
JUN	BDL	5.350	.	6.650	.	7.150
JUL	BDL	9.200	.	9.200	.	10.100
AUG	BDL	.	.	.	.	9.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	BDL	8.300	.	8.300	.	8.350
OCT	BDL	6.500	.	7.150	.	7.150
NOV	BDL	6.000	.	7.550	.	8.500
DEC	BDL	7.450	.	5.900	.	6.550
CHLORODIBROMOMETHANE (UG/L)				DET'N LIMIT = .100 GUIDELINE = 350 (A1+)		
JAN	BDL	4.600	.	4.900	.	5.500
FEB	BDL	4.800	.	5.400	.	4.800
MAR	BDL	4.800	.	5.100	.	4.100
APR	BDL	4.500	.	4.700	.	5.300
MAY	BDL	6.000	.	6.700	.	6.400
JUN	BDL	4.200	.	4.800	.	5.300
JUL	BDL	5.000	.	5.100	.	5.700
AUG	BDL	.	.	.	.	5.600
SEP	BDL	5.000	.	5.500	.	5.500
OCT	BDL	4.000	.	4.000	.	4.500
NOV	BDL	3.900	.	5.000	.	5.300
DEC	BDL	4.500	.	5.100	.	5.300
T-CHLOROETHYLENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 10.0 (C2)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	.050 <T	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	.	.	.	.	.050 <T
SEP	BDL	.100 <T	.	.100 <T	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
BROMOFORM (UG/L)				DET'N LIMIT = .200 GUIDELINE = 350 (A1+)		
JAN	BDL	.800 <T	.	.800 <T	.	.800 <T
FEB	BDL	.800 <T	.	.800 <T	.	.800 <T
MAR	BDL	.800 <T	.	.800 <T	.	.800 <T
APR	BDL	.800 <T	.	.800 <T	.	1.000 <T
MAY	BDL	1.000 <T	.	1.600 <T	.	1.400 <T
JUN	BDL	.600 <T	.	1.000 <T	.	.600 <T
JUL	BDL	.800 <T	.	.600 <T	.	.800 <T
AUG	BDL	.	.	.	.	.600 <T
SEP	BDL	1.000 <T	.	1.000 <T	.	.800 <T
OCT	BDL	.600 <T	.	.800 <T	.	.600 <T
NOV	BDL	.800 <T	.	1.000 <T	.	1.000 <T
DEC	BDL	.600 <T	.	1.000 <T	.	1.200 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM UNION WSS 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
1,4 DICHLOROBENZENE (UG/L)				DET'N LIMIT = .100	GUIDELINE = 5.0 (B1)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	.100 <T	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	.	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
TOTL TRIHALOMETHANES (UG/L)				DET'N LIMIT = .500	GUIDELINE = 350 (A1)	
JAN	BDL	19.500	.	19.250	.	22.100
FEB	BDL	25.850	.	24.500	.	23.100
MAR	BDL	22.250	.	25.700	.	22.700
APR	BDL	18.950	.	20.100	.	23.700
MAY	BDL	27.000	.	29.900	.	29.250
JUN	BDL	15.550	.	19.650	.	21.750
JUL	BDL	31.300	.	30.200	.	34.000
AUG	BDL	.	.	.	.	29.700
SEP	BDL	29.100	.	27.800	.	28.250
OCT	BDL	21.100	.	22.350	.	23.550
NOV	BDL	17.800	.	22.950	.	26.800
DEC	BDL	19.950	.	17.200	.	19.650

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML (A1)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL (A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	2000. (B4)
PENTACHLOROPHENOL	NG/L	50.	30000. (B4)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5 (A4)
FIELD TEMPERATURE	^{o}C	N/A	<15 ^{o}C (A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500 (A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20 (A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100 (A4)
MAGNESIUM	MG/L	.05	30. (F2)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40(F2)
SULPHATE	MG/L	.200	500. (A3)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)
METALS			
ALUMINUM	UG/L	.050	100. (A4)
ANTIMONY	UG/L	.050	10. (F3)
ARSENIC	UG/L	.050	50. (A1)
BARIUM	UG/L	.020	1000. (A1)
BORON	UG/L	.200	5000. (A1)
BERYLLIUM	UG/L	.010	0.20 (H)
CADMIUM	UG/L	.050	5.0 (A1)
COBALT	UG/L	.020	1000. (H)
CHROMIUM	UG/L	.100	50. (A1)
COPPER	UG/L	.100	1000. (A3)
IRON	UG/L	5.0	300. (A3)
MERCURY	UG/L	.01	1.0 (A1)
MANGANESE	UG/L	.050	50. (A3)
MOLYBDENUM	UG/L	.020	500. (H)
NICKEL	UG/L	.100	50. (F3)
LEAD	UG/L	.020	50. (A1)
SELENIUM	UG/L	.200	10. (A1)
SILVER	UG/L	.020	50. (A1)
STRONTIUM	UG/L	.100	2000. (H)
THALLIUM	UG/L	.010	13. (D4)
TITANIUM	UG/L	.100	N/A
URANIUM	UG/L	.020	20. (A2)
VANADIUM	UG/L	.020	100. (H)
ZINC	UG/L	.020	5000. (A3)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0 (A3)
PESTICIDES & PCB			
ALDRIN	NG/L	1.0	700. (A1)
AMETRINE	NG/L	50.	300000. (D3)
ATRAZINE	NG/L	50.	60000. (B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700. (G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300. (G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000. (A1)
ALPHA CHLORDANE	NG/L	2.0	7000. (A1)
GAMMA CHLORDANE	NG/L	2.0	7000. (A1)
BLADEX	NG/L	100.	10000. (B3)
DIELDRIN	NG/L	2.0	700. (A1)
METHOXYCHLOR	NG/L	5.0	900000. (B1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000. (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000. (D4)
ENDRIN	NG/L	4.0	200. (A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
HEPTACHLOR EPOXIDE	NG/L	1.0	3000.	(A1)
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)
POLYAROMATIC HYDROCARBONS				
PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0	N/A	
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	
PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	
SPECIFIC PESTICIDES				
TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	200000.	(B4)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	120000.	(B1)
PICLORAM	NG/L	100.	190000.	(B3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	20000.	(B1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION(AZINPHOSMETHYL)	NG/L	N/A	20000.	(B1)
MALATHION	NG/L	20.	190000.	(B1)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(A1)
METHYLTRITHION	NG/L	20.	N/A	

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
PARATHION	NG/L	20.	50000. (B1)
PHORATE (THIMET)	NG/L	20.	2000. (B3)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
AMINOCARB	NG/L	N/A	N/A
BENONYL	NG/L	N/A	N/A
BUX (METALKAMATE)	NG/L	2000.	N/A
CARBOFURAN	NG/L	2000.	90000. (B1)
CICP (CHLORPROPHAM)	NG/L	2000.	350000. (G)
DIALLATE	NG/L	2000.	30000. (H)
EPTAM	NG/L	2000.	N/A
IPC	NG/L	2000.	N/A
PROPOXUR (BAYGON)	NG/L	2000.	90000. (G)
SEVIN (CARBARYL)	NG/L	200.	90000. (B1)
SUTAN (BUTYLATE)	NG/L	2000.	245000. (D3)
VOLATILES			
BENZENE	UG/L	.050	5.0 (B1)
TOLUENE	UG/L	.050	24.0 (B4)
ETHYLBENZENE	UG/L	.050	2.4 (B4)
PARA-XYLENE	UG/L	.100	300. (B4)
META-XYLENE	UG/L	.100	300. (B4)
ORTHO-XYLENE	UG/L	.050	300. (B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0 (D1)
ETHLYENE DIBROMIDE	UG/L	.05	.05 G)
METHYLENE CHLORIDE	UG/L	.500	50. (B1)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	70. (D5)
1,1-DICHLOROETHANE	UG/L	.100	N/A
CHLOROFORM	UG/L	.100	350. (A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200. (D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0 (D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0 (B1)
1,2-DICHLOROPROPANE	UG/L	.050	6.0 (D5)
TRICHLOROETHYLENE	UG/L	.100	50. (B1)
DICHLOROBROMOMETHANE	UG/L	.050	350. (A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350. (A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0 (C2)
BROMOFORM	UG/L	.200	350. (A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17(D4)
CHLOROBENZENE	UG/L	.100	60. (D5)
1,4-DICHLOROBENZENE	UG/L	.100	1.0 (B4)
1,3-DICHLOROBENZENE	UG/L	.100	130. (G)
1,2-DICHLOROBENZENE	UG/L	.050	3.0 (B4)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A
TOTAL TRIHALOMETHANES	UG/L	.500	350. (A1)
STYRENE	UG/L	.05	140. (D5)